

**Utah Department of Transportation**



**Supplemental Specifications  
for**

**2005 Standard  
Specifications**

**FOR ROAD AND BRIDGE  
CONSTRUCTION**

**U.S. Standard Units (Inch-Pound Units)**

**Issued March 14, 2005**

# Memorandum

UTAH DEPARTMENT OF TRANSPORTATION

**DATE:** March 14, 2005

**TO:** Holders of Hard Copy of Standard Specifications

**FROM:** Barry Axelrod, CDT  
Standards and Specifications

**SUBJECT:** Supplemental Specifications Distribution, dated March 14, 2005

Applicable files for the change are attached. Maintain these files as a supplemental update to the UDOT Standard Specifications dated January 1, 2005. No pages are to be removed or replaced in the basic book, electronic or hard copy.

If you are in need of electronic copies of any Standard or Supplemental Specification please refer to the Standards and Specifications Web site at <http://www.udot.utah.gov/index.php?m=c&tid=302>. From there select the **2005 Standards** subtopic.

If you have any questions or problems with the electronic files contact me at 801-964-4570 or by email at [baxelrod@utah.gov](mailto:baxelrod@utah.gov).

Attachments

## **Listing of Supplemental Specifications**

**Issue Date: March 14, 2005**

Revised February 24, 2005

Section 01282M Article 1.1 Paragraph D added and Article 1.14 Paragraph E replaced.

Section 01284 New section added

Section 02785M Replaces Table 1 to correct reference callout from AASHTO to ASTM

Section 02843 Entire section revised.

Section 06055M Article 1.2 Paragraph F added and Article 2.2 Paragraphs A and D modified.

**Supplemental Specification  
2005 Standard Specification Book**

**SECTION 01282M**

**PAYMENT**

**Add the following to Part 1, Article 1.1:**

- D. Section 01284: Prompt Payment

**Delete Article 1.14, paragraph E and replace with the following:**

- E. From the total value of work, the Department deducts and retains five percent until after the entire Contract has been completed in an acceptable manner, with the following exceptions:
- a. Retention for subcontracted work paid upon satisfactory completion and acceptance by the Department. Refer to Section 01284.
  - b. When no less than 95 percent of the work has been completed, and with the consent of the Surety, the Engineer may prepare a semi-final estimate from which the Department retains 1½ percent of the original contract amount. The Department certifies the remainder for payment, less all previous payments.

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**SECTION 01284**

**PROMPT PAYMENT**

**Add Section 01284:**

**PART 1      GENERAL**

**1.1      SECTION INCLUDES**

- A.      This section applies only to Federal-Aid Contracts.
- B.      Requirements applicable to Contractors, subcontractors, service providers, material suppliers, and all tier subcontractors, service providers, and suppliers.

**1.2      PROGRESS PAYMENTS**

- A.      Include in subcontract, service, or purchase agreement language agreeing to pay promptly as required by this specification.
- B.      Pay subcontractors for satisfactory performance of sublet work, no later than 10 working days after receipt of payment by the Department.
  - 1.      Certify that payment has been made to all subcontractors for the work performed and paid for on the most recent Department pay estimate.
  - 2.      Provide documentation showing Department estimate number, bid item, quantities, and dollar amounts paid to subcontractors, including payments for contract bid items that are partially sublet.
- C.      Pay Material Suppliers and Service Suppliers within 30 calendar days after receipt of payment for work that includes materials and or services.
- D.      Submit the following to the Engineer within five working days after paying subcontractor(s), service provider(s), or material supplier(s):
  - 1.      A certified statement in the form of an affidavit on letterhead, including the signature of a legally responsible official, certifying:

- a. That payment of the total dollar amount paid to each entity has been made in accordance with all requirements of the contract and special provisions, and
- b. That the dollar amount paid is the total amount due for work or services performed or materials purchased through the most current pay estimate.

### **1.3 RETAINED MONEY**

- A. Include in subcontract, service, or purchase agreement language agreeing to pay retained money for subcontract, service, or purchase agreement upon satisfactory completion of the work and acceptance by the Department.
- B. For purposes of this Section, a subcontractor's work is considered satisfactorily completed when all work included in the subcontract is complete, in accordance with all requirements of the contract, and documented as required by the recipient. When a recipient has partially accepted a portion of the work, that portion of work performed is considered to be satisfactorily completed.
- C. Require written notification from the subcontractor when all subcontract items are complete.
  - 1. Notify the Engineer in writing within two working days after written notification from the subcontractor.
  - 2. The Engineer schedules and coordinates an inspection for acceptance of the work within three working days.
  - 3. Receive notification from the Department in writing when the work is considered to be satisfactorily complete and accepted. Acceptance of the work includes all requirements of the contract and agreement on pay quantities.
  - 4. Upon acceptance of the work, the Department releases an amount equal to the subcontractor's retainage. Submit to the Engineer a certified statement:
    - a. In the form of an affidavit on letterhead, including the signature of a legally responsible official, and the signature of a legally responsible official for the subcontractor, certifying that the total amount due is the total retention.
- D. Pay retained money owed to the subcontractor for satisfactory completion of the accepted work no later than 30 calendar days after receipt of payment from the Department.

- E. Submit to the Engineer within five workdays after making payment a certified statement:
  - 1. In the form of an affidavit on letterhead, including the signature of a legally responsible official, certifying that the total amount paid is the total amount of retained money paid.
- F. A determination of satisfactory completion and payment of retained money does not relieve any contractual obligation.

#### **1.4 DELAY OF PAYMENT**

- A. Delay payment only for cause, with prior written notice to all parties, to include the Department.
- B. Provide subcontractor 10 working days from date of written notification to correct deficiencies.
  - 1. Release payment upon receipt of documentation demonstrating correction of deficiencies within 10 working days.
- C. Engineer may withhold dollar amount of delayed payment from future estimates.
- D. Include in subcontract, service, and purchase agreements, language providing for the use of appropriate alternative dispute resolution mechanisms to resolve time of payment disputes.
- E. Department may hold disputed funds in escrow until the dispute is resolved.

#### **1.5 LIQUIDATED DAMAGES**

- A. Upon determination by the Department of failure to make prompt payment the Engineer will provide written notification to the Contractor. Resolve the failure and make prompt payment within three working days.
- B. Failure to resolve prompt payment results in the assessment of \$250 per each working day, per violation, commencing from the date of the written notification until proof of payment is received.
- C. Proof of payment is defined as providing confirmation from the subcontractor that payment has been received.

- D. Department considers the failure to make prompt payment an indication of a lack of financial fitness. The following additional measures may be imposed as necessary:
1. Forfeit the privilege of bidding on Department projects until payment covered by this Section is made.
  2. Forfeit the privilege of having a subcontract, supply or purchase agreement approved to perform work or supply materials on Department projects until payment covered by this Section is made.
- E. Department employs other mechanisms, consistent with this Section and applicable state and local law, so payment is fully and promptly made.

## **1.6 CONTRACTOR INCENTIVE ENTITLEMENT**

- A. Two hundred fifty dollars will be paid to Prime Contractor for each subcontractor provided the following criteria is met:
1. Worked on the project.
  2. All prompt payment statements submitted to the project office within five working days after payment to subcontractors.
  3. Department received no valid complaints regarding prompt payment.
  4. Payment within 30 days after project has reached physical completion.

**PART 2      PRODUCTS      Not used**

**PART 3      EXECUTION      Not used**

END SECTION

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**SECTION 02785M**

**CHIP SEAL COAT**

**Delete article 2.6, Table 1 and replace with the following:**

**Table 1**

Chip Seal Cover Material Properties		
Unit Weight	AASHTO T 19	100 lb/ft <sup>3</sup> , max
One Fractured Face	ASTM D 5821	95% min.
Two Fractured Faces	ASTM D 5821	90% min.
LA wear, see Note 1	AASHTO T 96	30% max.
Soundness	AASHTO T 104	10% max.
Flats & Elongates, 1:3 ratio	ASTM D 4791	5% max.
Stripping, see Note 1	Materials MOI 8-945	10% max.
Polishing, see Note 1	AASHTO T 278, T 279	31 min.
Note 1: The Department has the right to waive this requirement if the aggregates have proven acceptable through successful past performance as determined by the Engineer.		

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**SECTION 02843**

**CRASH CUSHIONS**

**Delete Section 02843 and replace with the following:**

**PART 1      GENERAL**

**1.1      SECTION INCLUDES**

- A.      Furnish and install crash cushions
- B.      Furnish and install crash cushion markings

**1.2      RELATED SECTION**

- A.      Section 02324: Compaction

**1.3      REFERENCES**

- A.      ASTM D 4956: Standard Specification for Retroreflective Sheeting for Traffic Control
- B.      NCHRP Report 350: Recommended Procedures for the Safety Performance Evaluation of Highway Features
- C.      UDOT Guidelines for Crash Cushions and Barrier End Treatments, current edition

**1.4      SUBMITTALS**

- A.      Installer Certification.
  - 1.      Manufacturer certified installer.
  - 2.      Provide proof of certification prior to installation.

- B. Provide a letter of certification for each system location, affirming that each system is installed according to Department's and the manufacturer's specifications.
  - 1. Reference Project Number and describe Station/location indicating median, left or right shoulder or gore area application.

## **PART 2 PRODUCTS**

### **2.1 CRASH CUSHION**

- A. Select from the current approved products list, UDOT Guidelines for Crash Cushions and Barrier End Treatments.
  - 1. Refer to the current UDOT Guidelines for Crash Cushions and Barrier End Treatments for specific uses and requirements for each approved system type. The UDOT Guidelines for Crash Cushion and Barrier End Treatments and Barrier End Treatments is maintained by the Division of Traffic and Safety and available through the UDOT Internet home page. Refer to <http://www.udot.utah.gov/index.php/m=c/tid=719>.
    - a. Systems tested under NCHRP-350 requirements and a letter of acceptance issued by FHWA.
    - b. Supply three sets of shop drawings and installation drawings for each system type supplied.
      - 1) Distribute drawings to Contractor, installation contractor, and Engineer or designated representative.
  - 2. Refer to CC series Standard Drawings for each approved system type.
- B. Types:
  - 1. Type A: Protect fixed hazards greater than 3 ft wide within 15 ft of traveled way, with less than 100 ft of longitudinal space in front of the hazard.
    - a. Supply system(s) with an adequate width as specified in plan set.
    - b. Supply system(s) as per manufacturer's requirements for design speed as specified in plan set.
      - 1) Supply the minimum NCHRP-350 Test Level 3 system for roadways greater than 55 MPH.
    - c. Galvanize all steel parts as per manufacturer's requirements.
    - d. Supply transition element, for the approach of opposing traffic, when system is installed with bi-directional traffic and the system is within 1.2 times the required minimum clear zone.
      - 1) Two transition elements required when system is installed with w-beam median barrier.
    - e. Install system on concrete pad as per manufacturer's requirements.
    - f. Supply crash cushion markings as per CC series Standard Drawings.

2. Type B: To protect fixed hazards up to 3 ft wide or less and within 15 ft of traveled way, with less than 100 ft of longitudinal space in front of the hazard.
  - a. Supply system with an adequate width as specified in plan set.
  - b. Supply system as per manufacturer's requirements for design speed as specified in plan set.
    - 1) Supply the minimum NCHRP-350 Test Level 3 system for roadways greater than 55 MPH.
  - c. Galvanize all steel parts as per manufacturer's requirements.
  - d. Supply transition element, for the approach of opposing traffic, when system is installed with bi-directional traffic and the system is within 1.2 times the required minimum clear zone.
    - 1) Two transition elements required when system is installed with w-beam median barrier.
  - e. Install system on concrete pad as per manufacturer's requirements.
  - f. Supply crash cushion markings as per CC series Standard Drawings.
3. Type C: To protect fixed objects 3 ft wide or less within 15 ft of traveled way, and longitudinal space in front of the hazard greater than 100 ft.
  - a. Galvanize all steel parts as per manufacturer's requirements.
  - b. Supply double-sided w-beam transition element when system is installed in conjunction with concrete barrier or bridge parapet.
  - c. Supply crash cushion markings as per CC series Standard Drawings.
4. Type D: To protect fixed hazards within 15 ft of traveled way. Use in areas where one impact per year is anticipated or when repair history indicates two or more impacts over a three-year period.
  - a. Supply system with an adequate width as specified in plan set.
  - b. Supply system as per manufacturer's requirements for design speed as specified in plan set.
  - c. Supply the minimum NCHRP-350 Test Level 3 system for roadways greater than 55 MPH.
  - d. Galvanize all steel parts as per manufacturer's requirements.
  - e. Supply transition element, for the approach of opposing traffic, when system is installed with bi-directional traffic and the system is within 1.2 times the required minimum clear zone.
    - 1) Two transition elements required when system is installed with w-beam median barrier.
  - f. Install system on concrete pad as per manufacturer's requirements.
  - g. Supply crash cushion markings as per CC series Standard Drawings.

5. Type E - Sand Barrel Arrays: To protect fixed hazards outside of 15 ft from the traveled way and there is an unlimited amount of space. Refer to the UDOT Guidelines for Crash Cushion and Barrier End Treatments for specific uses and requirements of sand barrel arrays.
  - a. Design sand barrel array using Energite® III/Fitch® Universal Module Systems design manual.
  - b. Certify sand barrels and components meet NCHRP-350 for nonredirective, gating crash cushions.
  - c. Sand barrels will be constructed using a frangible polyethylene material, which will shatter upon impact.
    - 1) Use yellow sand barrels.
    - 2) Permanently apply manufactured date, month, and year to each piece of the barrel system.
    - 3) Use one or two-piece barrel construction.
    - 4) Interface cones with the barrel to prevent leakage of sand but allow for the drainage of excess water for sand barrel systems that use barrel and cone configuration.
    - 5) Provide lids for each sand barrel. Fasten lid securely to barrel.
  - d. Provide sand barrels that hold the required amounts of sand as per requirements of the typical sand barrel array.
    - 1) 200 lbs., 400 lbs, 700 lbs., 1400 lbs, and 2100 lbs.
    - 2) Mark each barrel in a manner that the amount of sand required for the nominal weight is visible for systems that are designed using barrels for multiple sand weight requirements.
  - e. Use dry sand to fill modules, 2 percent or less moisture.
  - f. Supply crash cushion markings and construct pad as per CC series Standard Drawings.
6. Type F: Use to protect concrete barrier or bridge parapets with less than 150 ft of longitudinal space in front of the hazard. Used in a unidirectional application.
  - a. Galvanize all steel parts as per manufacturer's requirements.
  - b. Install system on concrete pad, when specified by manufacturer, and to the manufacturer's specifications.
  - c. Supply crash cushion markings as per CC series Standard Drawings.
7. Type G: Use to protect the approach end of single face w-beam guardrail or approach ends of bridge parapet and concrete barrier with unlimited longitudinal space (greater than 125 ft) in front of the hazard in a unidirectional application, and is installed where a tangent system is desired. W-beam transition element is required when system is installed at the end of bridge parapet or the end of concrete barrier.
  - a. Supply one of the approved post options as described in UDOT Guidelines for Crash Cushion and Barrier End Treatments.

- b. Supply system with 12-½ ft galvanized w-beam rail elements as per manufacturer's requirements.
  - c. Supply manufacturer approved impact head and hardware.
  - d. Galvanize all steel parts as per manufacturer's requirements.
  - e. Supply crash cushion markings as per CC series Standard Drawings.
- 8. Type H: Use to protect the approach end of single face w-beam guardrail or approach end of bridge parapet and concrete barrier with unlimited longitudinal space (greater than 125 ft) in front of the hazard in a unidirectional application, and is installed where a flared system is desired. W-beam transition element is required when system is installed at the end of a bridge parapet or the end of concrete barrier.
  - a. Supply one of the approved post options as described in UDOT Guidelines for Crash Cushion and Barrier End Treatments.
  - b. Supply system with 12-½ ft galvanized w-beam rail elements as per to manufacturer's requirements.
  - c. Supply manufacturer approved impact head or end section and hardware.
  - d. Galvanize all steel parts as per manufacturer's requirements.
  - e. Supply crash cushion markings as per CC series Standard Drawings.

## 2.2 CRASH CUSHION MARKINGS

- A. Marker plate: Per CC series Standard Drawings.
  - 1. Construct marker plate 18 inches x 18 inches using 0.032-gage aluminum with appropriate object marker sheeting.
    - a. Drill a 7/16-inch hole in each corner of plate.
    - b. Use ASTM D 4956 Type III sheeting with encapsulated glass bead retroreflective material, or greater. Use appropriate sheeting type for the substrate sheeting is placed on.
    - c. Use a 24 inch x 14 inch object marker plate or self-adhesive object marker sheeting ASTM D 4956 Type III sheeting with encapsulated glass bead retroreflective material, or greater for Type C systems. Use appropriate sheeting type for the substrate sheeting is placed on.
    - d. Substitution of self-adhesive object marker sheeting ASTM D 4956 Type III sheeting with encapsulated glass bead retroreflective material, or greater, 18 inches x 18 inches or 24 inches x 14 inches placed directly on system for Marker Plate is acceptable.
    - e. Accept object markers supplied by the manufacturer that exceed the above requirements.

- B. Marker Post: Per CC series Standard Drawings
  - 1. Construct marker post, 60 inches long and 2 inches OD, using black polyethylene material.
    - a. Close top of marker post.
    - b. Drill three 7/16-inch mounting holes.
    - c. Apply three 4-inch bands of yellow sheeting ASTM D 4956 Type III sheeting with encapsulated glass bead retroreflective material, or greater.

## **PART 3 EXECUTION**

### **3.1 INSTALLATION**

- A. Prepare site to finished grade prior to installation of crash cushion or barrier end treatment.
  - 1. Construct approach areas and recovery areas to meet UDOT Standards and system requirements prior to installation of system.
    - a. Refer to CC series Standard Drawings for system requirements.
  - 2. Construct concrete pad, when applicable, to meet system requirements.
    - a. Use manufactures specification for concrete pad construction.
    - b. Refer to CC series Standard Drawings for Type E - sand barrel detail, for pad requirements.
  - 3. Obtain Engineer's approval of site grading, approach and recovery areas, and layout, prior to system installation.
  - 4. Compact backfill material around posts and foundation tubes to minimum 96 percent of maximum laboratory density and dispose of excess material. Refer to Section 02324.
- B. Install in accordance with:
  - 1. UDOT Guidelines for Crash Cushion and Barrier End Treatments.
  - 2. Manufacturer's specifications and recommendations.
  - 3. Use manufacturer certified installer to perform the installation.

- C. Complete repair or replacement of any crash cushion damaged during construction within 24 hours of notification of damage.
1. Contractor is responsible for the cost of repair or replacement of any permanent system damaged for any reason until final acceptance.
    - a. Exception:
      - 1) Damage is caused by an errant vehicle, AND
      - 2) Damage occurs after Traffic has been established in the final lane configuration with shoulders as established in the project plans.
    - b. Payment will be made using a Force Account basis for the cost of repair or replacement of the damaged system when the Engineer determines the conditions described under the exception above apply.

END OF SECTION

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**SECTION 06055M**

**TIMBER AND TIMBER TREATMENT**

**Add the following to Part 1, Article 1.2:**

- F. Southern Pine Inspection Bureau (SPIB) Standard Grading Rules

**Delete Article 2.2, paragraph A and replace with the following:**

- A. Wood posts that comply with the current WWPA Standard Grading Rules or SPIB Grading Rules.

**Delete Article 2.2, paragraph D and replace with the following:**

- D. Guardrail Post:
  - 1. Surfaced or rough-sawn posts and offset blocks.
  - 2. Use only one species of wood on any one project.
  - 3. Douglas Fir-Larch, Hem-Fir, Lodgepole Pine, Ponderosa Pine, or Southern Yellow Pine.
  - 4. Grade No. 1 or better.